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WHAT'S NEW AND EXCITING IN DERIVATIVES?

Not much, as far as I know. If I'm missing something beyond what I write here, I hope the readers will correct me!

Derivatives are not in the news these days. With the exception of LIBOR replacement, which impacts the derivatives world mightily and which I've discussed in past letters, there's no great excitement either positive or negative. One might also claim that the instability and inscrutability of the US overnight repo market is "derivatives news." So I'll include repo, but I've written on this topic as well.

Gone are the days when derivative professionals defended against, or cheered on, the cries of "weapons of mass destruction!" Derivative trades have not recently blown up a Barings Brothers or an AIG Financial Products group. That whole "derivatives caused the Global Financial Crisis" thing is more than 10 years old. There continue to be rumors of credit weakness at Deutsche Bank, but the rumors no longer blame this bank's derivative notional positions approaching $50 trillion.

A favorite activity of international banking regulators of recent decades was bemoaning "systemic risk" while pointing at derivative trading among banks. True, the regulatory requirement to trade derivatives through central clearing parties (CCPs) transformed this particular systemic risk to concentrated but easily visible "CCP risk." As a result, rightly or wrongly, the angst over derivative counterparty credit risk has arguably evaporated. Further, there are no longer loud allegations that derivatives hide the risks that banks take. In short, derivatives are out of the world's spotlights and off the radar screens.

WHERE IS THE FINANCIAL WORLD EXCITEMENT?

Where is all the news, then? It's in the developed world's ubiquitous central bank policies of (i) controlling interest rates at all points of the yield curve, including the past decade's "invention" of negative interest rates, and (ii) pumping up the debt and equity markets through so-called open market operations (OMO) and quantitative easing (QE). These OMO and QE activities, which differ only in the small detail of the specific securities the central bank purchases, erratically increase and decrease a country's money supply.

As central banks are government entities, the current "excitement" therefore entails government control of money. Further, all money in all countries is currently "fiat." That is, governments set the meaning, legality, amount, and ultimate utility of money. Money is what governments say money is. As such, private citizens bear the risk,

both upside and downside consequences, of government monetary ("money") policy. I welcome the invention of a derivative product to hedge or replicate this risk but don't believe it is feasible.

Crypto-currencies are also "exciting." Though not derivatives, they are private-sector attempts to escape the risks of government monetary policy. But cryptos are vulnerable precisely for this reason. I expect governments will ultimately prohibit crypto-currencies outright or burden them with stipulations and regulations that squash their original intent.

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The six articles of this issue begin with the highly practical examination and deployment of calendar correlation modeling for commodity derivatives of Galeeva and Haversang, both of the New York University Tandon School of Engineering. The authors give an overview of correlation products for energy derivatives followed by a description of the dynamics of instantaneous correlation and its ramifications. Proposing several models with this background, Galeeva and Haversang report excellent fit of the ultimate model with historical correlations and, more importantly, the ability to determine implied parameters from market quotes on correlation derivatives.

Riccardo Rebonato of the EDHEC Business School and Risk Institute presents a technique to derive the evolution of the "smile surface" (implied volatility dependence on strike price and expiration) from current foreign exchange option prices with a range of expiries and strike prices. The author describes existing heuristics for projecting the smile surface forward in time as well as the model-dependent shortcoming of most past studies of this topic. With this background, the article then chooses and demonstrates the utility of a self-similarity assumption to calculate the smile evolution.

Calice (Loughborough University), Chen (Cardiff University), and Williams (Durham University) explore econometric models for equity option prices. Based on empirical tests of model efficacy, the authors propose alternative estimation procedures for the GARCH-type models that better capture the role of intraday jumps in equity prices. This article's out-of-sample analysis incorporates more than 300,000 traded prices of the Options Price Reporting Authority data feed.

Ma (Shanghai University of Finance and Economics and Putian University), Huang (Fudan Universitiy), and Xu (Ryerson University) build on and extend prior research for the "willow tree" numerical technique in option pricing. The authors incorporate stochastic volatility models, extend the tree to two dimensions, and apply the algorithm to exotic options and the dividend-and-ruin problem. The article assesses numerical convergence empirically and theoretically.

Martin Reinke of the Ludwig Maximilian Universität contributes to the deep, rich, and longstanding problem of deriving the risk-neutral density of a market variable by examination of option prices. The author provides both a good literature review and narrative explanation for the history of this challenge. This study provides a detailed comparison of two leading, expert techniques and finds relative merits to each.

Guo (Southwest Jiaotong University) and Liu (Southwestern University of Finance and Economics) propose closed-form valuation formulas for VIX futures under two distinct GARCH models. The authors find that their approach outperforms existing industry methods and suggest extension of the technique to the pricing of VIX options.

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